

STEAME LEARNING SPACE:

Planning and Developments by the European Federation of STEAME Teacher Facilitators Academies

www.steame-academy.eu

REFERENCE NUMBER: 101102619

Dr Gregory Makrides

STEAME-Academy project coordinator

Professor of STEAME Education , University of the National Education Commission in Krakow PL

President, European Association of ERASMUS Coordinators

Content

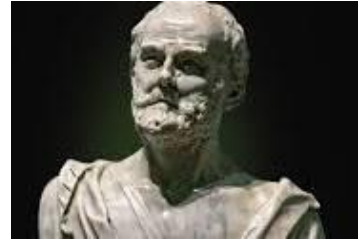
In the webinar we will discuss

- The rationale for the change of learning approaches
- The past, the present and the future of Learning
- The STEAME PBL Education planning and resources
- The STEAME Learning and competence development programmes
- The Learning Spaces and Evolution of Learning
- The STEAME Teacher Certification (Micro-credential), First Piloting and results
- The STEAME-Academy Federation and regional academies
- Ethical issues in STEAME Education
- Coming STEAME related events

3 statements said by 3 philosophers

➤ Heraclitus of Efesos, 544-484 BC

The Greek Philosopher said “τα πάντα ρει” (ta panta ri) meaning “everything changes in nature” and explained this with the statement that we cannot enter the same river twice.



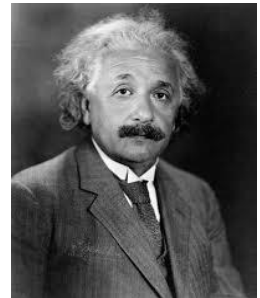
➤ Timotheus of Miletus, 446 – 360 B.C.

The best teacher is not the one who imparts knowledge but the one who inspires curiosity!



➤ Einstein said, 1879 – 1955 AC

“Imagination is more important than knowledge. Knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand.”



In the meantime we haven't seen much of a change in classroom structures



1924



2024



What about university programmes?

- Mathematics
- Physics
- Chemistry
- Biology
- Geography
- Mechanical Engineering
- Civil Engineering
-

➤ ***We are still producing SINGLE Science professionals!!!***

- **BUT we all know that to develop any innovation, worth investing, you need to involve two or more sciences, engineering, technology etc.**



Surveys of Employers for the last 20+ years are indicating their evaluation preference of employers when they evaluate new applicants for jobs...

- RANK 3 : Knowledge
- RANK 2: Competence and Skills
- RANK 1: ?

Communication ranks 1

Are universities getting the message?



Research and Experimentation is suggesting the following for improving competences and skills

- Problem based learning
- Inquiry and Research based learning
- Project based learning
- Learning by design
- Relate knowledge to real life
- Cooperation/Peer learning
- Blended Learning
- Internships
- Flip-classroom
- Communication
- **“Experiential Learning”**



Digital Learning in parallel support





question

- What do you want to see in a future school/university that you do not see today?

Among university professors



What do you want to see in a future school /university that you do not see today?

27 responses





What do you want to see in a future school that you do not see today?

AMONG SCHOOL TEACHERS



What do you want to see in a future school or university that you do not see today?



ANOTHER GROUP OF TEACHERS

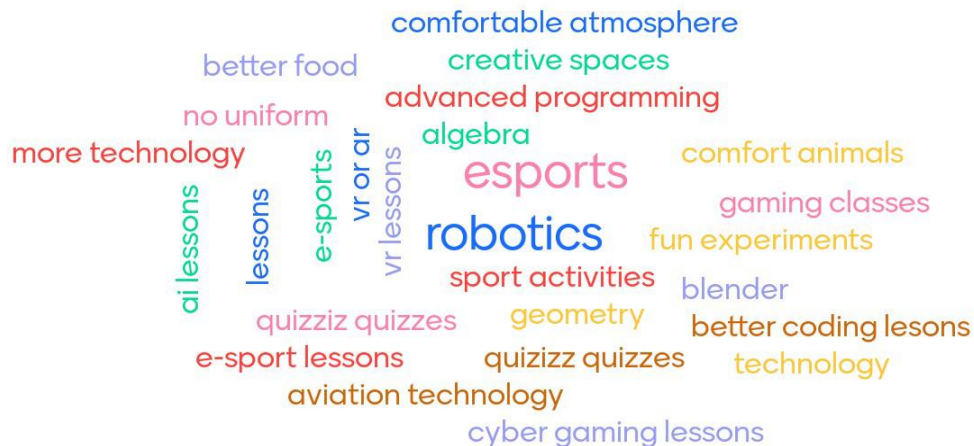


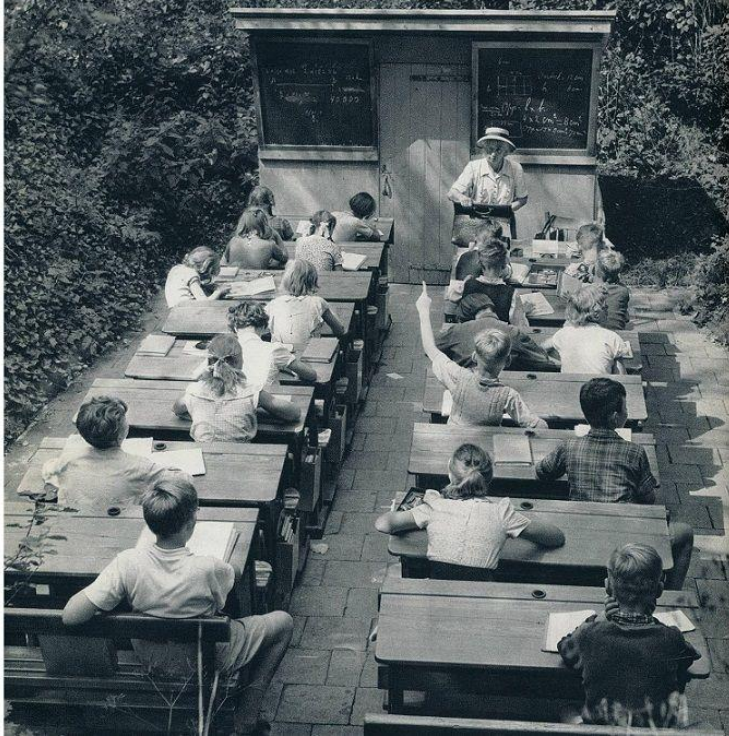
Replies by students of age 9-14



What do you want to see in a future school that you do not see today?

29 Responses

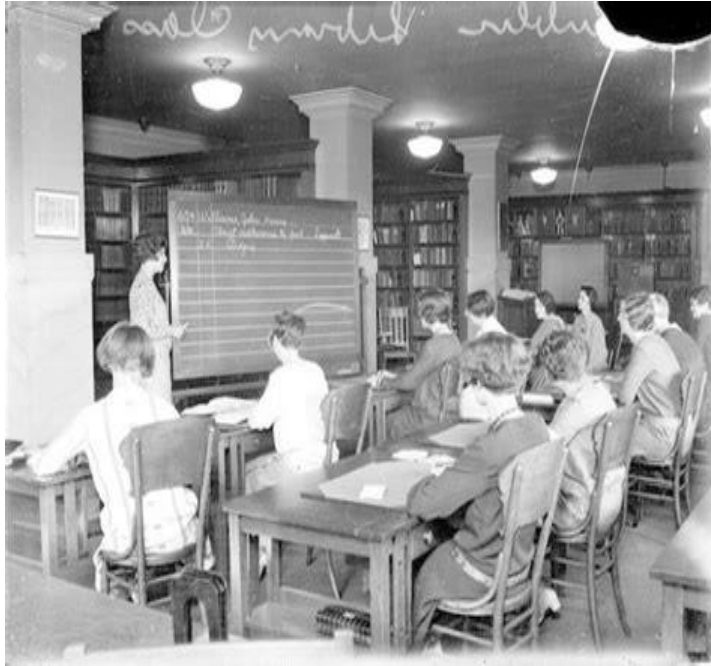




1950 With air-condition



2024 with air-condition



1960 portability



2020+ portability



The STEAME-Academy EU Funded Project

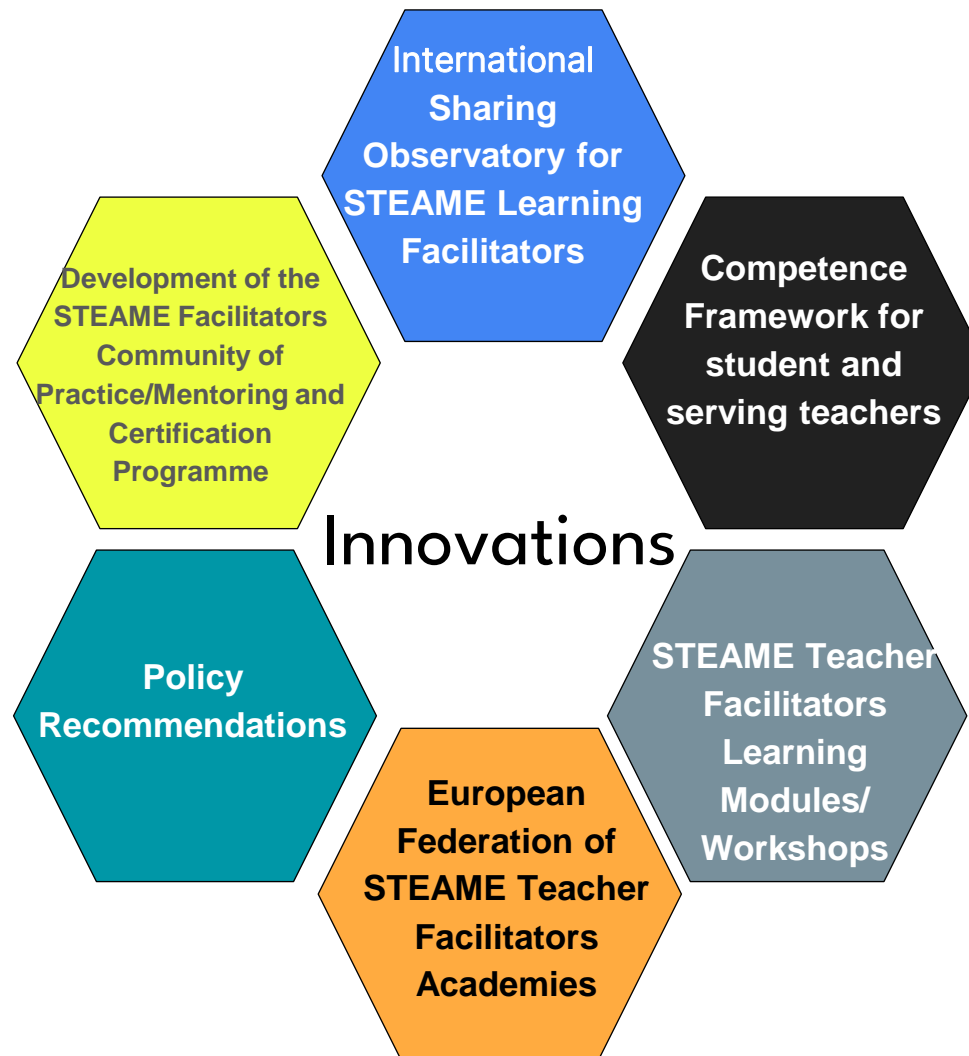
The project is establishing a **network of STEAME Teacher Facilitators Academies** under the European Federation of STEAME Teacher Facilitators Academies, at a European and Regional level. By doing so, it empowers teacher facilitators to drive education transformation in future schools and universities. These facilitators, serving as skilled professionals and experts, can play a crucial role in fostering changes in learning and facilitating the development of competencies and skills among young learners.

[Watch Pitch Video](https://www.youtube.com/watch?v=yNA6OkVREWI)

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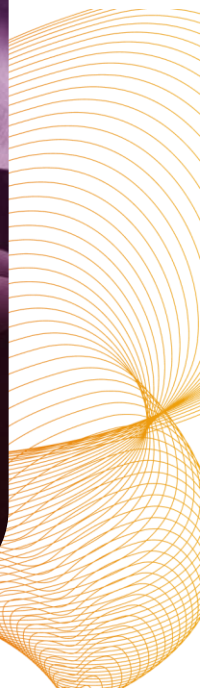
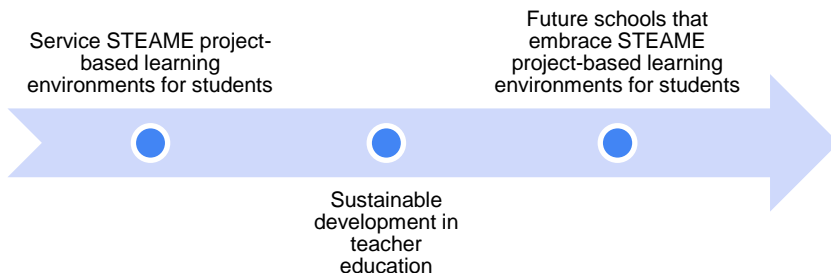
Co-funded by
the European Union



Collaborative Approach

- Service teachers assume the **role of mentors** for student teachers in a European mobility-driven system
- Joint effort positively impacts the quality of education in Europe
- Supports the continuous professional development of future teachers

Future Vision

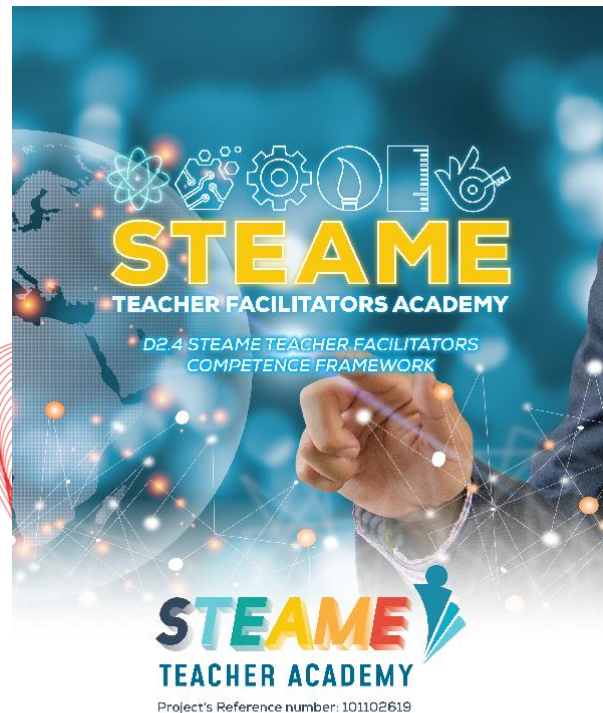




Competence Framework for STEAME Teachers

STEAME Teacher Facilitators Competences

1. **Design and implement context-bound STEAME projects**
2. Consider formal education standards in STEAME projects
3. **Monitoring STEAME projects and reporting**
4. Embed learning in truly interdisciplinary STEAME projects
5. **Guide student learning in STEAME projects**
6. Support STEAME projects with the right learning environment and resources
7. **Involve students in STEAME projects**
8. Promote student self-regulation and metacognition in STEAME projects
9. **Engage and coach to support learning**
10. Reflect on performance as a STEAME project facilitator
11. **Apply creativity and innovation in STEAME projects**
12. Keep learning about STEAME projects and share knowledge





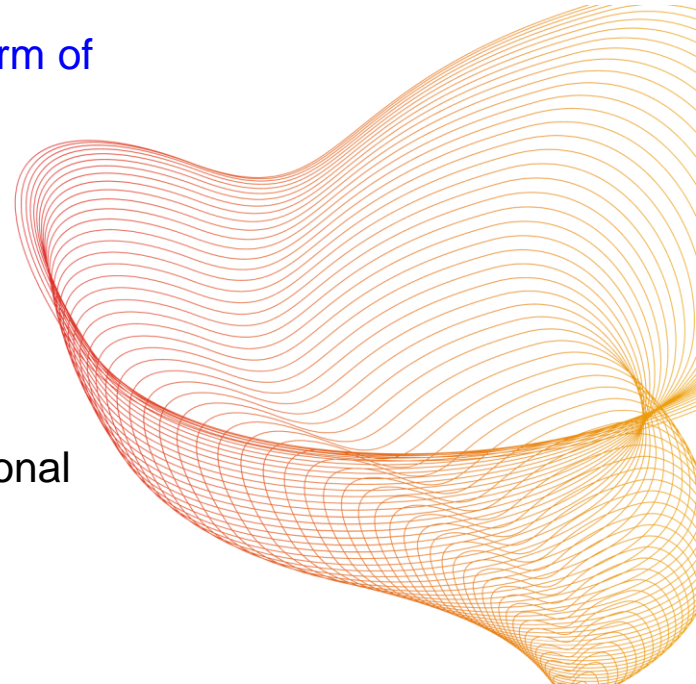
EUROPEAN FEDERATION OF STEAME TEACHER FACILITATORS ACADEMIES



- Promote and support the establishment of Regional STEAME Teacher Academies
- Support through a European Platform - Observatory
- Provide the STEAME Teacher Certification in the form of a Micro-credential
- Support Mentor-Mentee system
- Organize exchange events, like conferences , workshops, webinars, festivals
- Policy recommendations
- Updates of Competence Framework
- A set of Guidelines in establishing national and regional STEAME Teacher Facilitators Academies



The Platform



EVOLUTION

EDUCATION 3.0

- Student-Centered approach
- The teacher is transformed into a Coordinator/facilitator, advisor, learner and practice guide
- The student is researching more
- VR to support Flip classroom
- More dialogue, technology is everywhere, the student is self-learning and everywhere.
- The classical style classroom no longer exists
- Lesson Plans are converted into ...
... *Learning Plans*



EVOLUTION

EDUCATION 4.0

- Co-creation and innovation in the centre
- Whenever and Wherever
 - Hybrid Learning Environments
 - Interactive practical exercise – F2F or Distance
- Learning is done outside schools, while in school premises students develop competences and skills
- Learning Plans are now called Learning & Creativity Plans
- The technology
 - Its free or/and easily accessible,
 - Increased use of virtual reality, artificial intelligence ,etc

Continuous evolution and innovation and therefore a need for development of Competences and Skills so people become Self-Adaptable to Change

EDUCATION 4.0

Four core components are integrated to shape the concept of Education 4.0:

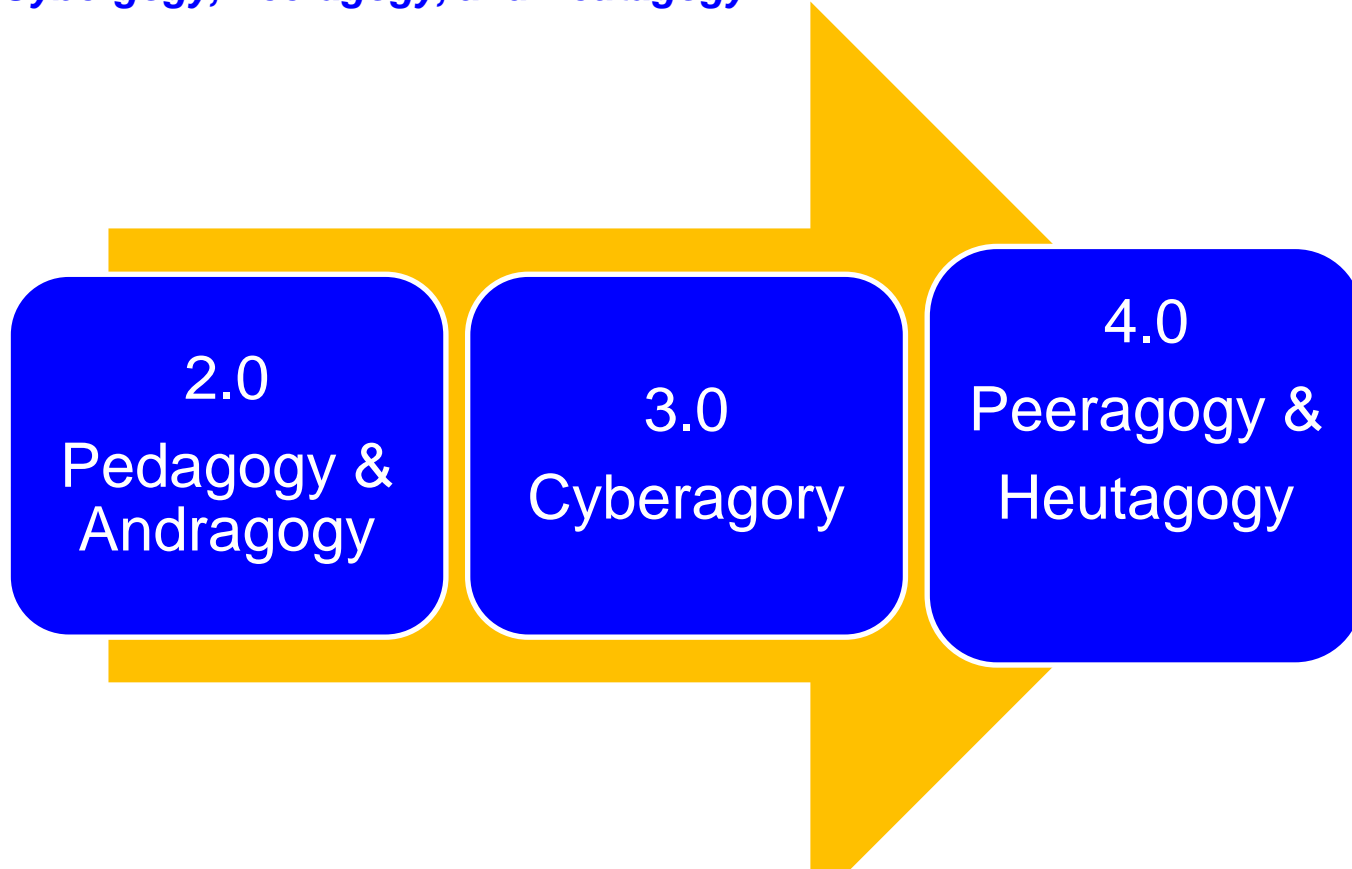
- (i) Competencies development through IBL, PBL, CBL...internships, blended learning. Micro-credentials as the competence and skill certification.
- (ii) Learning Methods (Digital Learning via BYOD, Micro-learning)
- (iii) Information and Communication Technologies (VR, AR, MR, XR, AI, etc)
- (iv) Infrastructures, Learning Spaces, Learning Communities

2.0
Lesson Plans

3.0
Learning Plans

4.0
Learning
&
Creativity
Plans

The evolution of Pedagogy and Andragogy
into
Cybergogy, Peeragogy, and Heutagogy!



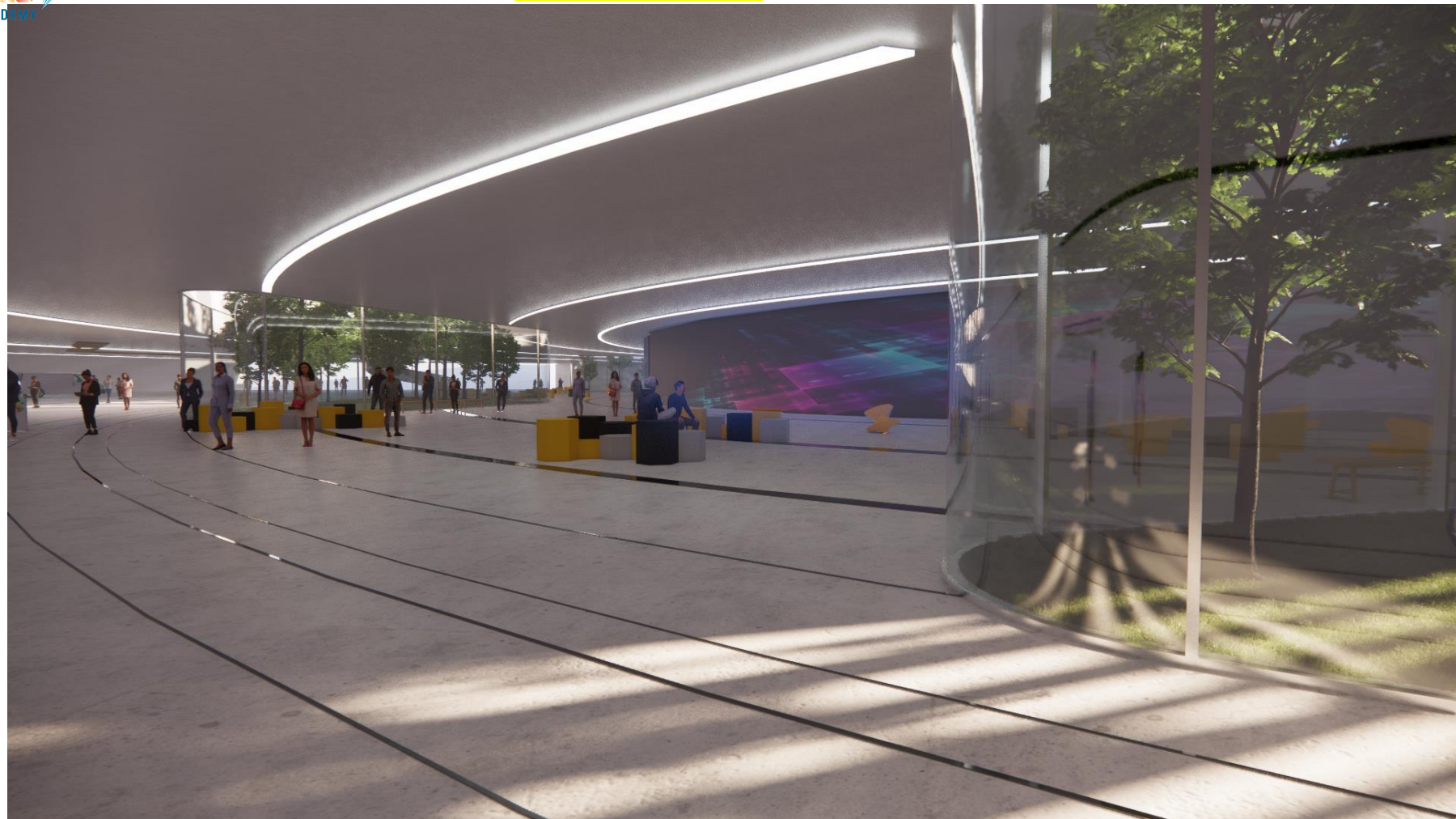


A LEARNING SPACE IN THE FUTURE
Imagination in the play



A learning space of the future





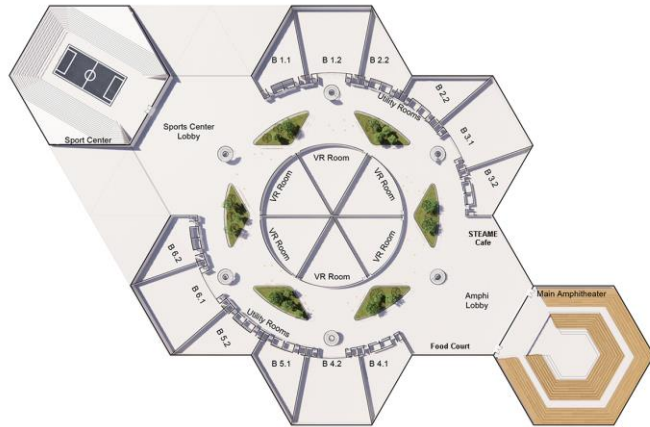








Specs Basement



MAIN LABS

B1.1 Main Biology Lab
B1.2 Main Chemistry Lab
B2.1 Main Physics Lab
B2.2 Main Mathematics Lab
B3.1 Main Construction and 3D printers Lab
B3.2 Main Environmental Lab
B4.1 Main Robotics Lab
B4.2 Main Computing and Software Lab
B5.1 Main Prototype Development Lab
B5.2 Main VR Centre Lab
B6.1 Main Skills and Talent Development Lab
B6.2 Main STEAME Communication Lab

BASEMENT
1:2000 @ A4

BASEMENT

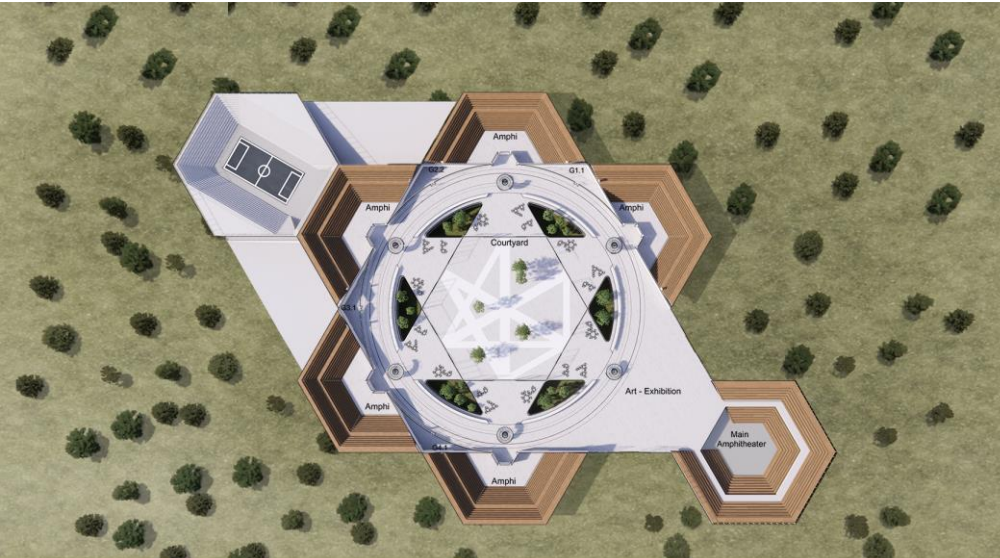
● STEAME THEATRE MAIN LABS

- B1.1 Main Biology Lab
- B1.2 Main Chemistry Lab
- B2.1 Main Physics Lab
- B2.2 Main Mathematics Lab
- B3.1 Main Construction and 3D printers Lab
- B3.2 Main Environmental Lab
- B4.1 Main Robotics Lab
- B4.2 Main Computing and Software Lab
- B5.1 Main Prototype Development Lab
- B5.2 Main VR Centre Lab
- B6.1 Main Skills and Talent Development Lab
- B6.2 Main STEAME Communication Lab

- Additional VR rooms
- Learning stations
- Entry into amphitheatres

Specs

Ground Floor



Satellite Labs
G1.1 Robotics – Computing –Multimedia S-Lab
G2.2 Construction- Environmental S-Lab
G3.1 Biology-Chemistry S-Lab
G4.1 Physics-Mathematics S-Lab

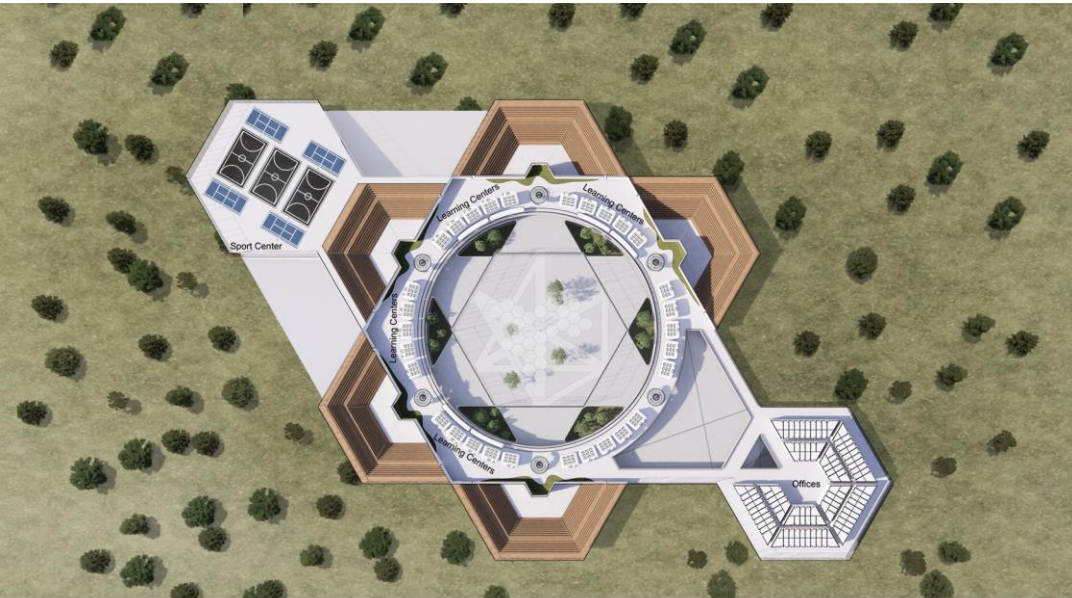
GROUND FLOOR
1:2000 @ A4

Satellite Labs

- G3.1 Biology-Chemistry S-Lab
- G4.1 Physics-Mathematics S-Lab
- G5.1 Industry Liaison Office
- G5.2 Virtual Business Centre
- G1.1 Robotics – Computing –Multimedia S-Lab
- G1.2 Sound-proof student meeting room
- G2.2 Construction- Environmental S-Lab
- G2.1 Sound-proof student meeting room
- G3.2 Sound-proof student meeting room
- G4.2 Sound-proof student meeting room
- Individual Learning Stations as private u-shape booths
- Open space movable furniture for small group work by students
- Courtyard
- Reception area
- Entry into amphitheatres

Specs

First floor



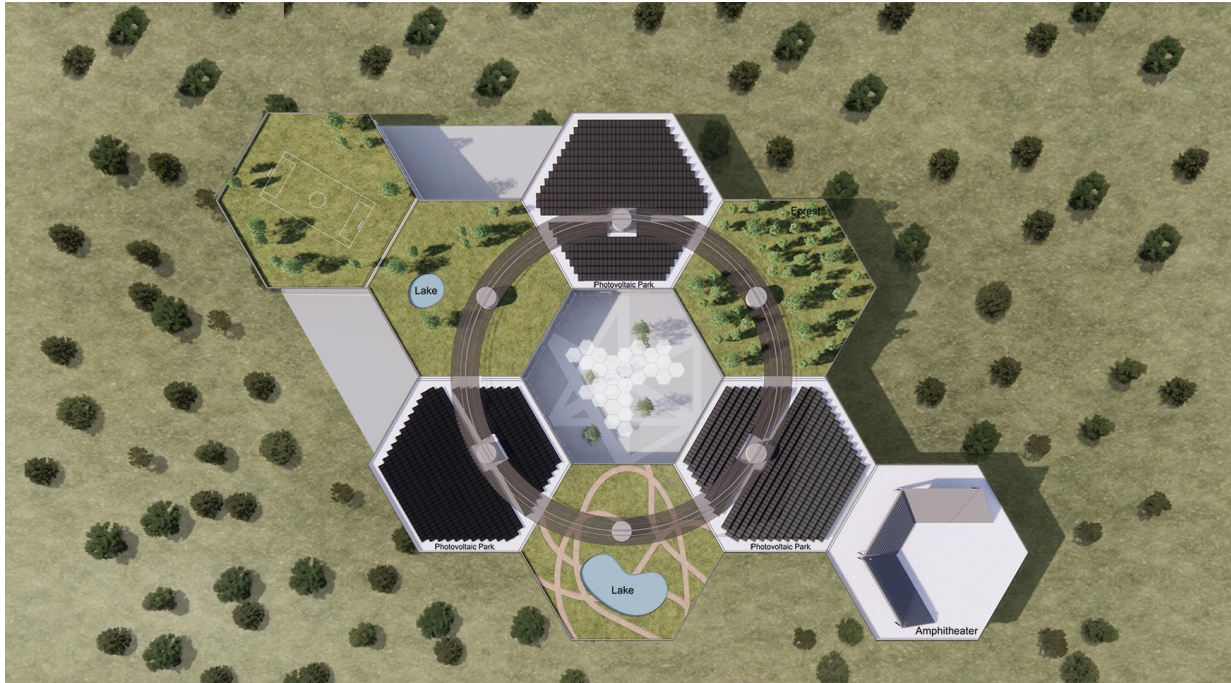
1st FLOOR
1:2000 @ A4

THE VERY QUIET FLOOR – THE IDEAS FLOOR

- Open space flexible movable furniture for student groups
- Co-creation Train moving ...with group sitting stations
- Learning Centres/Rooms
- Additional Learning Stations
- Entry into amphitheatres
- Slow Moving STEAME train
- Administration offices

Specs Roof

- Recreation spaces
- Cafeteria
- Garden and Lake
- Photovoltaics
- Football court
- Athletic field
- Open Amphitheatre



ROOF
1:2000 @ A4



Colour of Learning SPACE
could change every day



Are teachers ready to facilitate the learning?

- Professional Development of service teachers and students teachers
- Modules , webinars, workshops, online and physical activities
- STEAME Observatory with resources for teachers (114 Learning & Creativity Plans and 100+ micro-learning videos)
- Certification Programme : STEAME Teacher Facilitators Micro-credential Certification
- First pilot group of 32 certified teachers followed a programme from February – July 2024 with creation and implementation with students of STEAME Learning & Creativity plans.



FIRST PILOTING COMPLETED FROM FEBRUARY TO JULY 2024

PILOT PROGRAMME

STEAME Teacher Facilitators Certification

(Micro-credential of *30+ hours programme*)



➤ 14 Modules/Workshops to support the Certification Programme

1. STEAME LEARNING SPACE
2. MANAGEMENT OF THE STEAME LEARNING SPACE/ENVIRONMENT
3. STEAME TECH RESOURCES AND METHODS
4. VR LEARNING ENVIRONMENT FOR STEAME PBL ACTIVITIES
5. INTERACTIVE STEAME PROCESS
6. STEAME PROJECT-BASED LEARNING (PBL)
7. STEAME LEARNING & CREATIVITY PLANS
8. LEARNING WITH ENTREPRENEURIAL MINDSET
9. LEARN HOW TO LEARN
10. EXTERNAL COLLABORATION AND NETWORKING
11. STEAME EVALUATION METHODS with emphasis in PBL
12. FACILITATION OF FEEDBACK ABOUT THE PROCESS IN SCHOOLS
13. SUSTAINING AND IMPROVING THE STEAME PROCESS
14. STEAME GREEN AND ENERGY ISSUES IN EDUCATION

+cooperation + creative work + implementation with students



CERTIFICATION

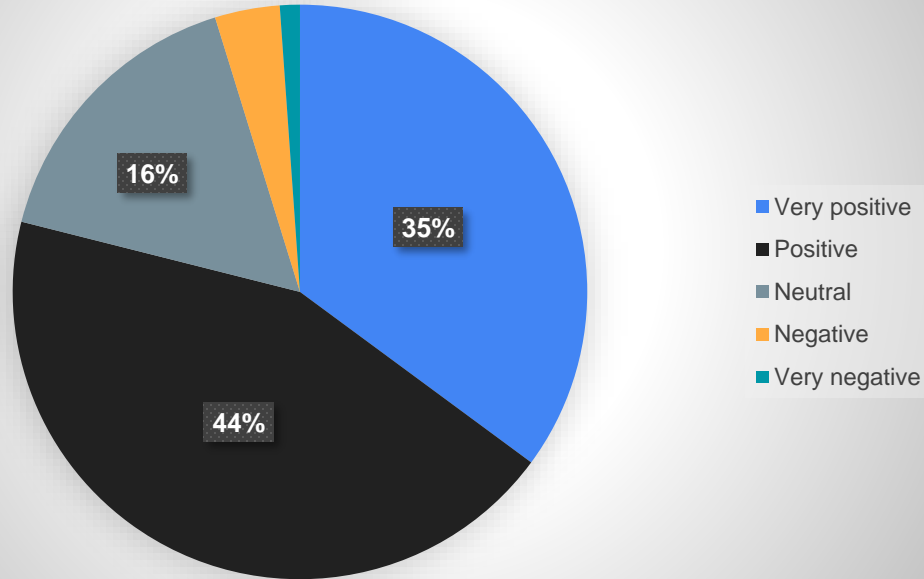
Certification



School student reactions after the STEAME PBL piloting programme-July 2024

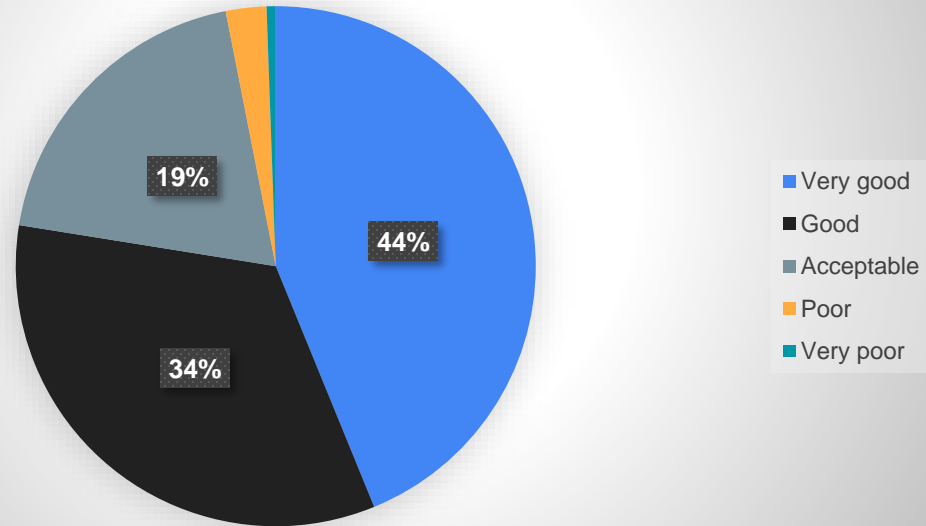
1)How do you feel about the STEAME learning process?

356 responses



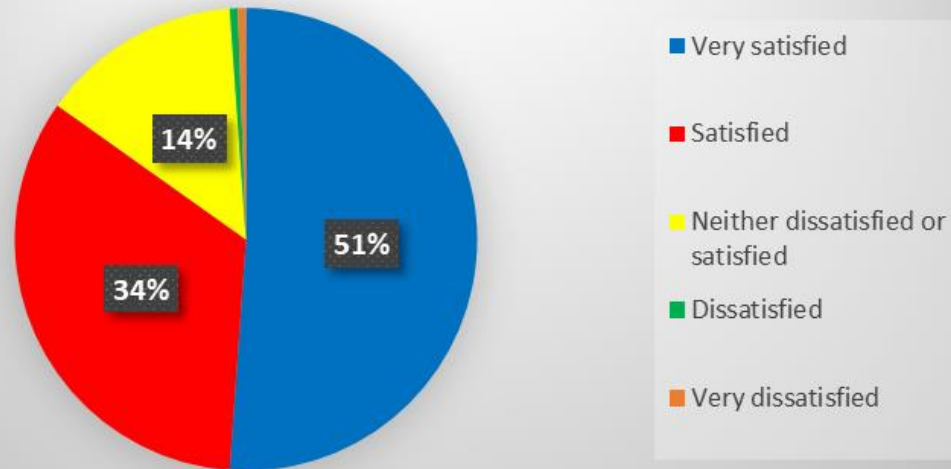
2)How do you evaluate the communication and collaboration with your classmates during your work within the STEAME framework?

356 responses



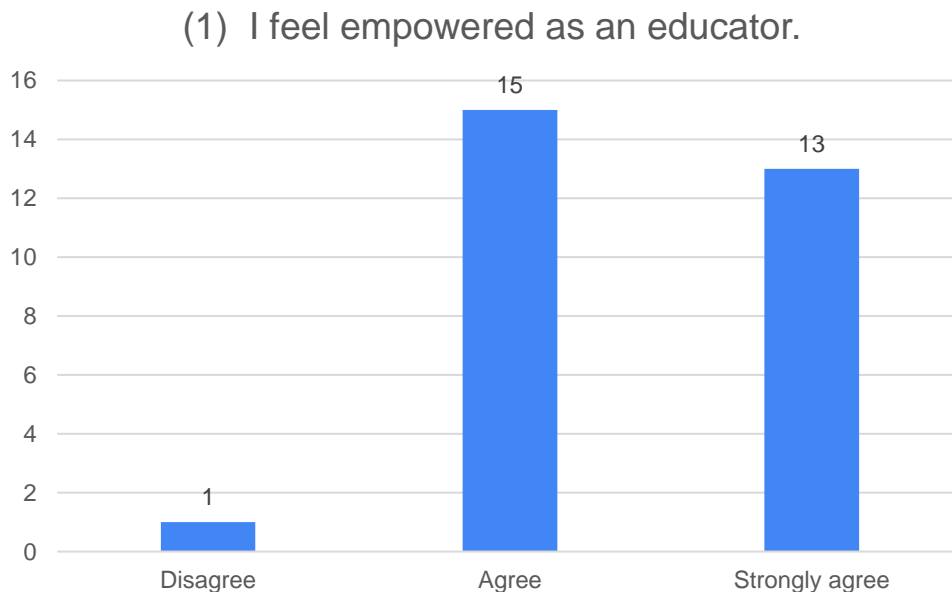
3)How satisfied are you with the support you receive from your teachers during the STEAME learning process?

356 responses



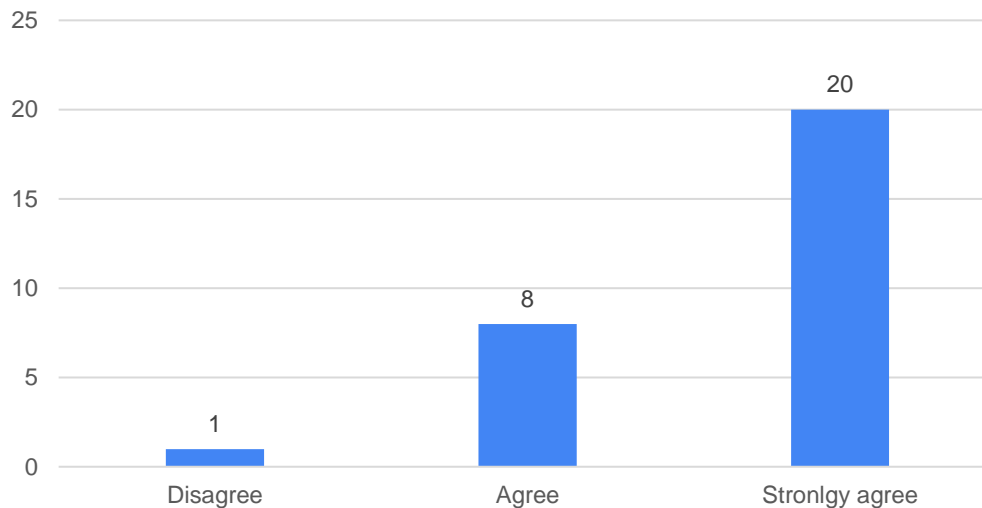
Teachers reflections: Pre-implementation

To what extent do you agree with the following statements?



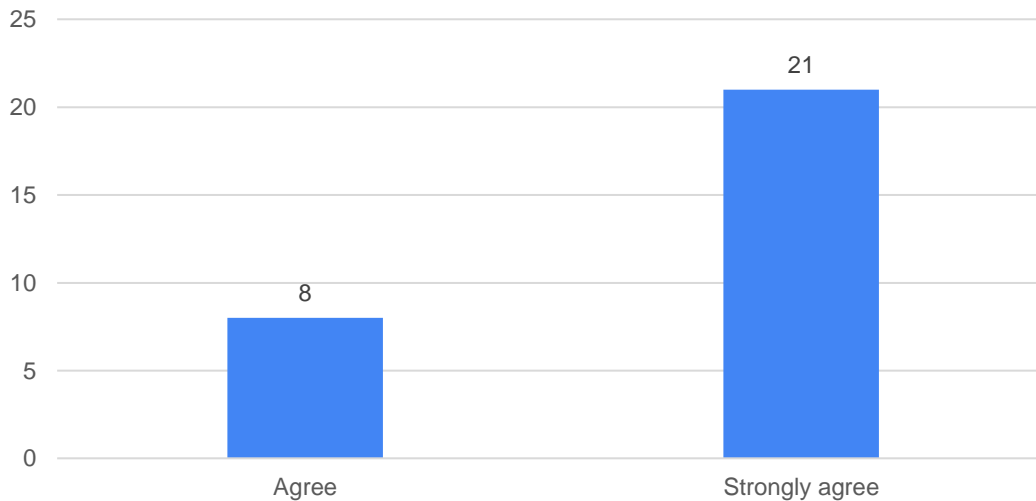
Teachers reflections: Pre-implementation

(2)The STEAME program helped me learn new practices to enhance student learning.



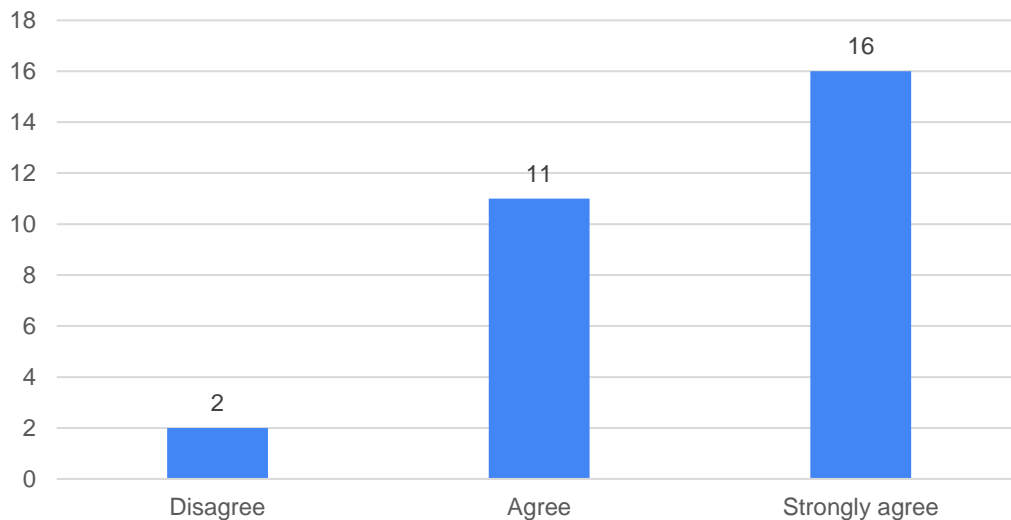
Teachers reflections: Pre-implementation

(3) I learned to collaborate with teachers from other subjects.



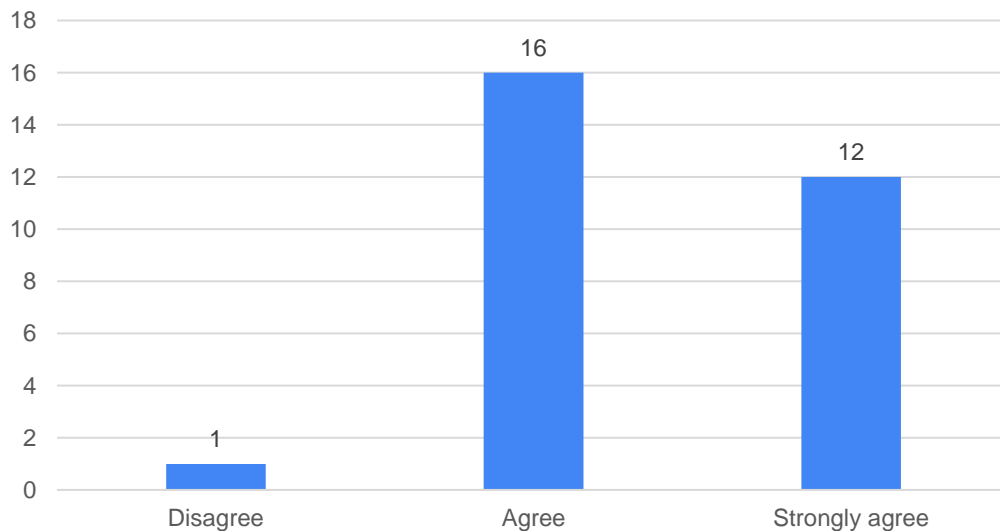
Teachers reflections: Pre-implementation

(4) The training program was relevant to my needs.



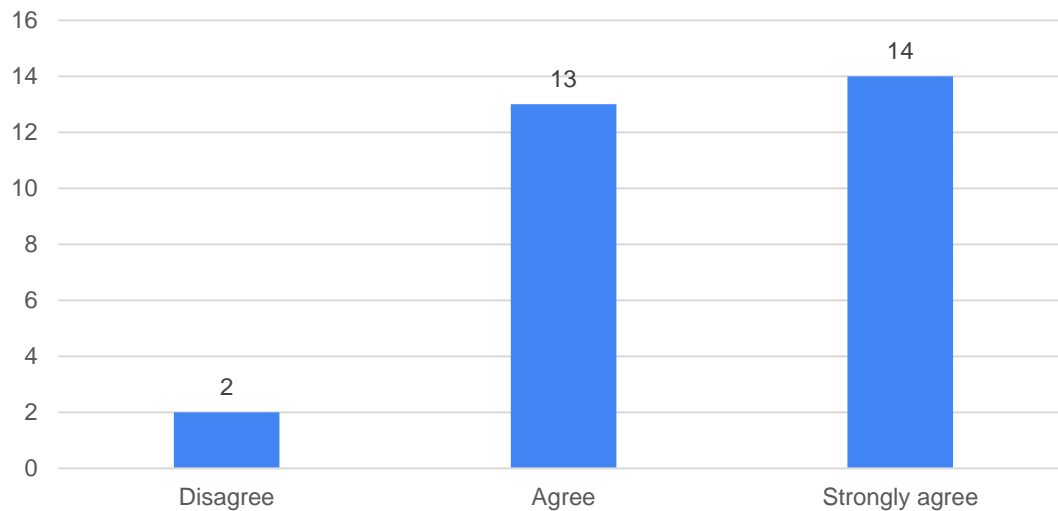
Teachers reflections: Pre-implementation

(5) I feel confident in applying the content of the STEAME method to my students.



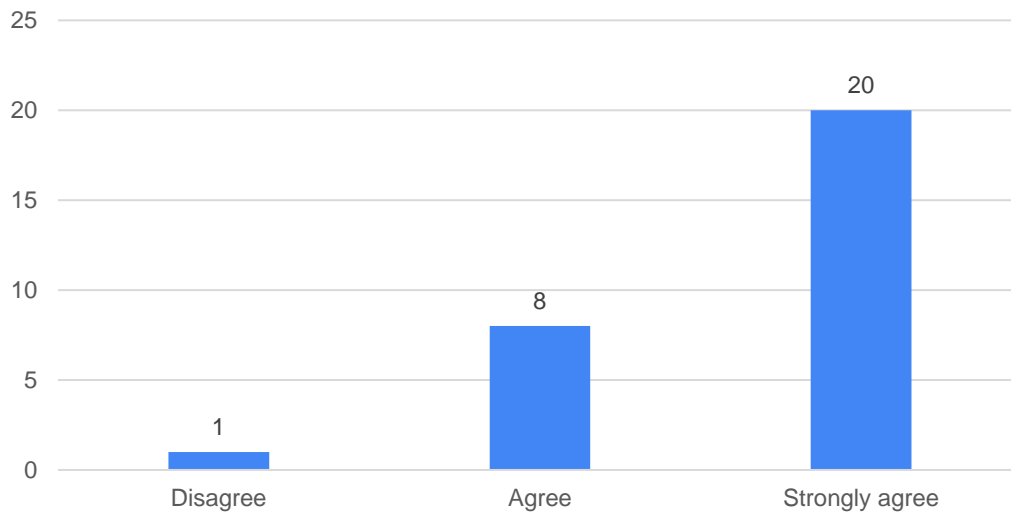
Teachers reflections: Pre-implementation

(6). The certification training program was well-designed and interactive.



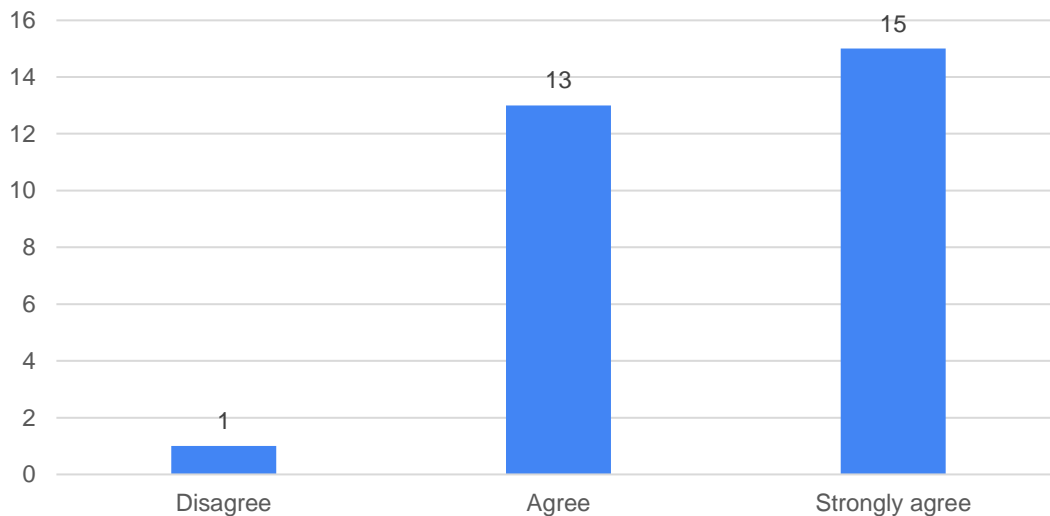
Teachers reflections: Pre-implementation

(7). I would recommend the program to my colleagues.



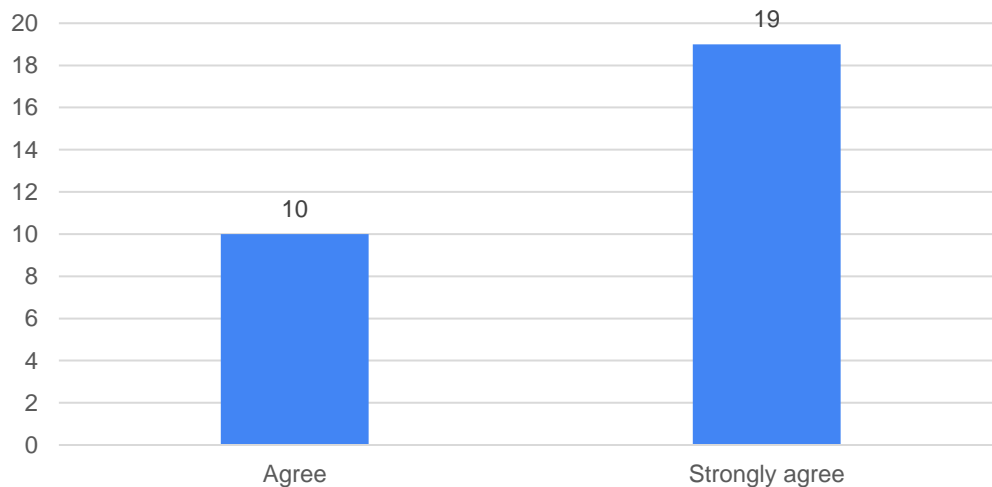
Teachers reflections: Pre-implementation

(8) The collective professional exchange of ideas during the training improved my skills.



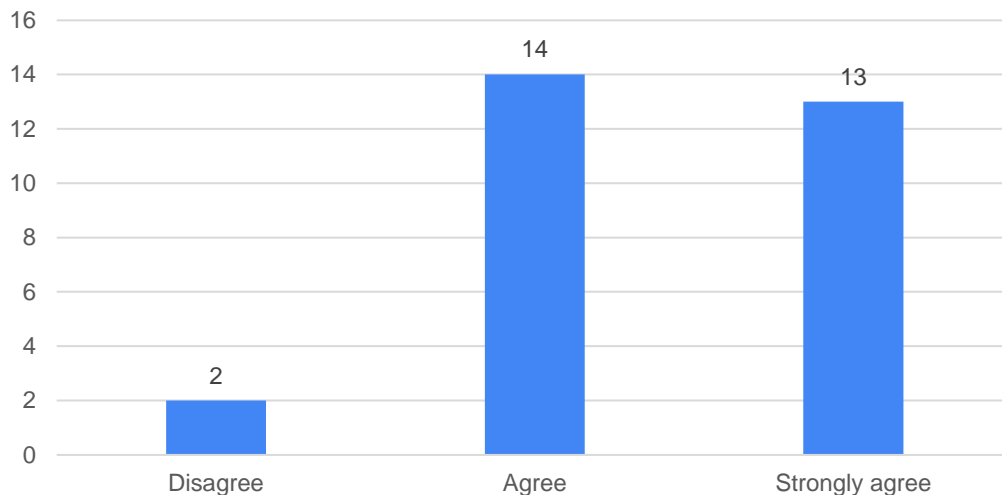
Teachers reflections: Pre-implementation

(9) The experiences from implementing the STEAME method (project-based learning) were useful in my work.



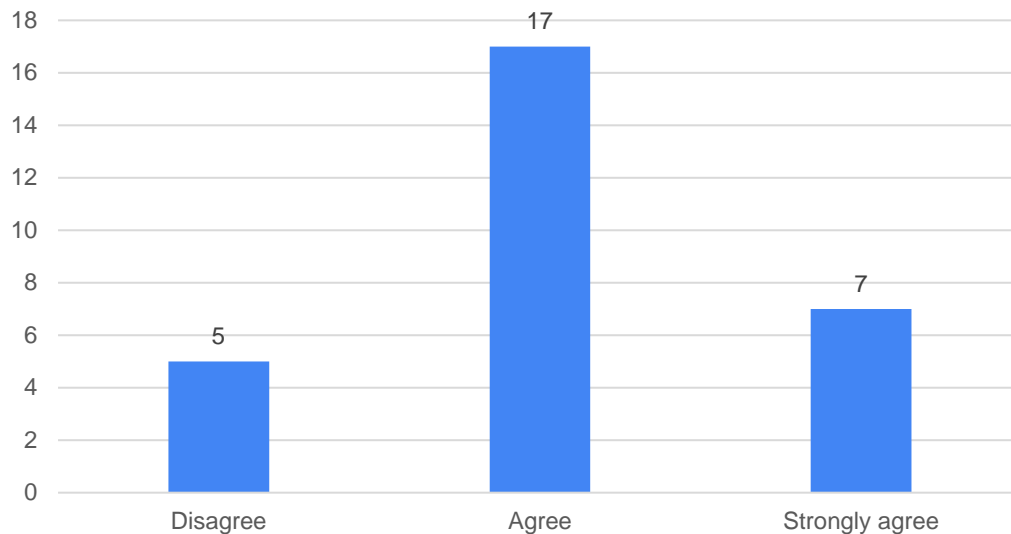
Teachers reflections: Pre-implementation

(10) During the STEAME program, I was given access to useful materials.



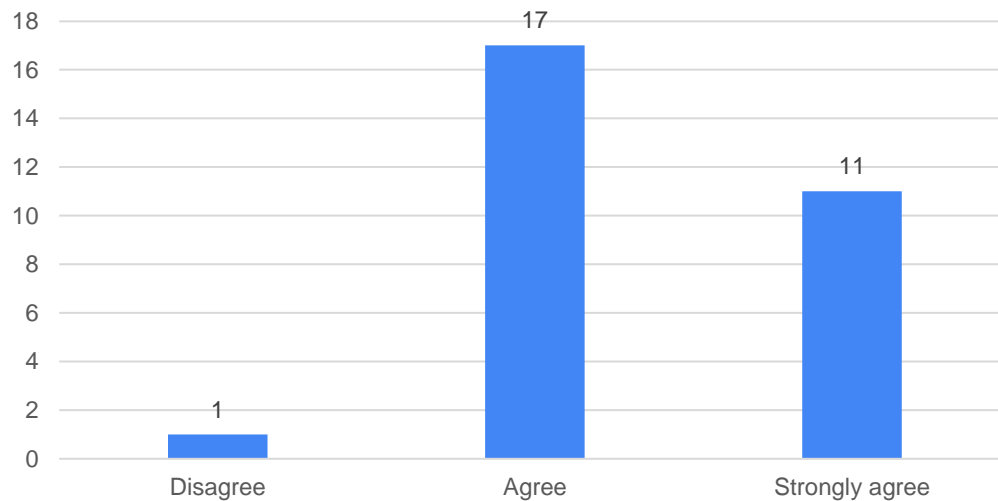
Teachers reflections: Pre-implementation

(11) During this time, I have partially implemented the STEAME program in my daily teaching.

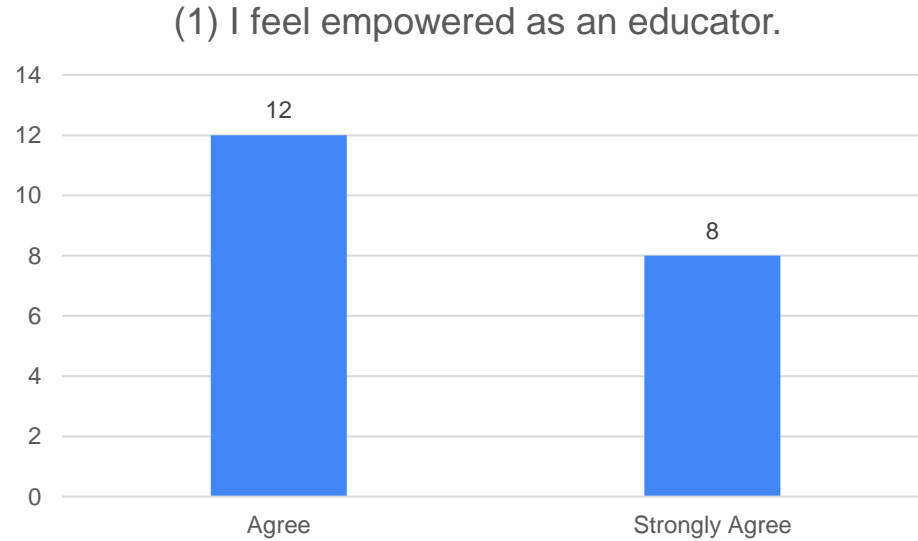


Teachers reflections: Pre-implementation

(12) I have developed my own creativity and learning plan during the training.

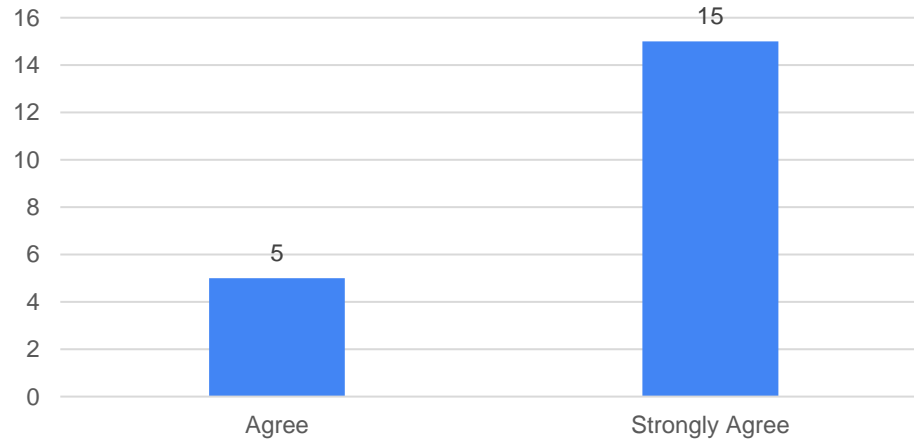


Teacher reflections : Post-Implementation



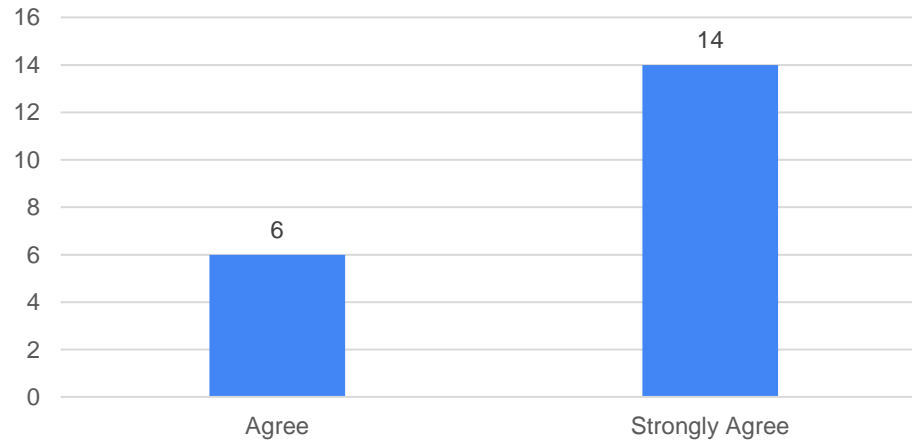
Teacher reflections : Post-Implementation

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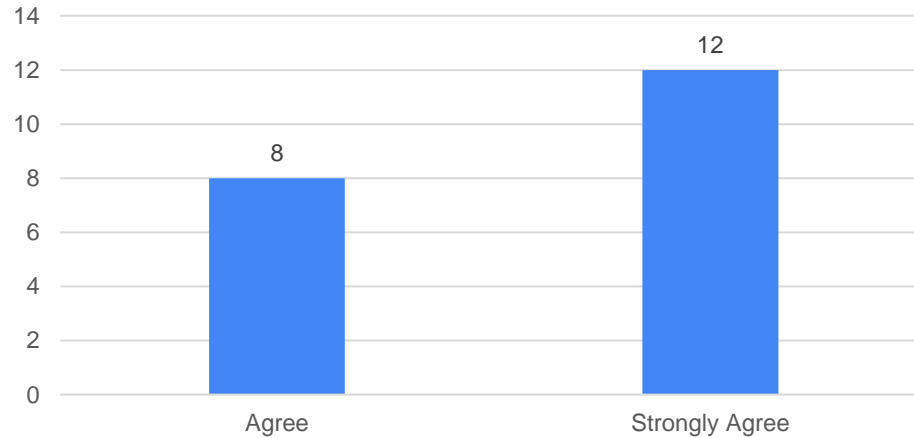
Teacher reflections : Post-Implementation

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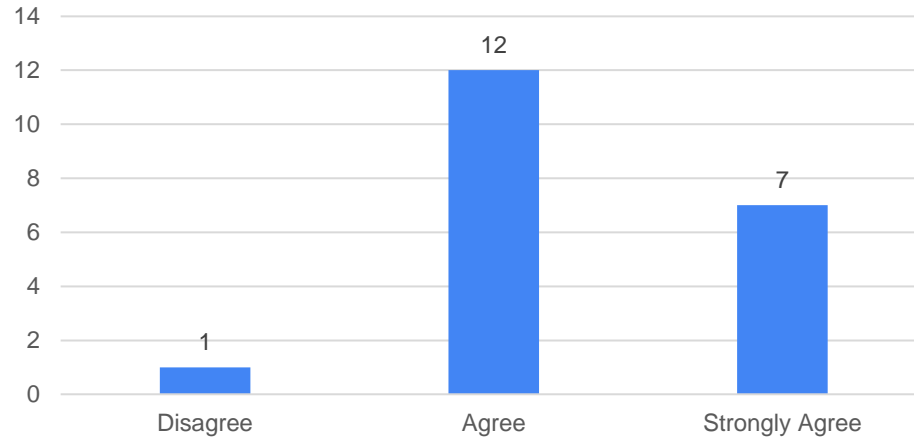
Teacher reflections : Post-Implementation

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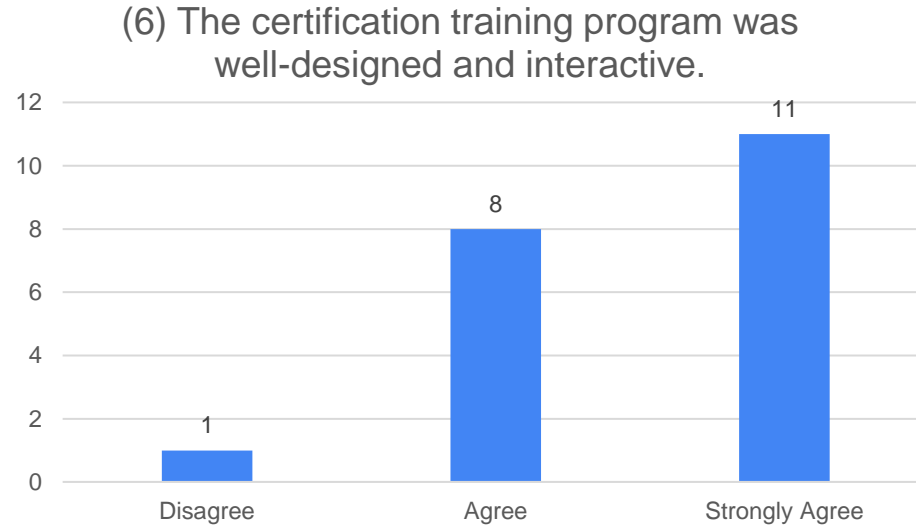


Teacher reflections : Post-Implementation

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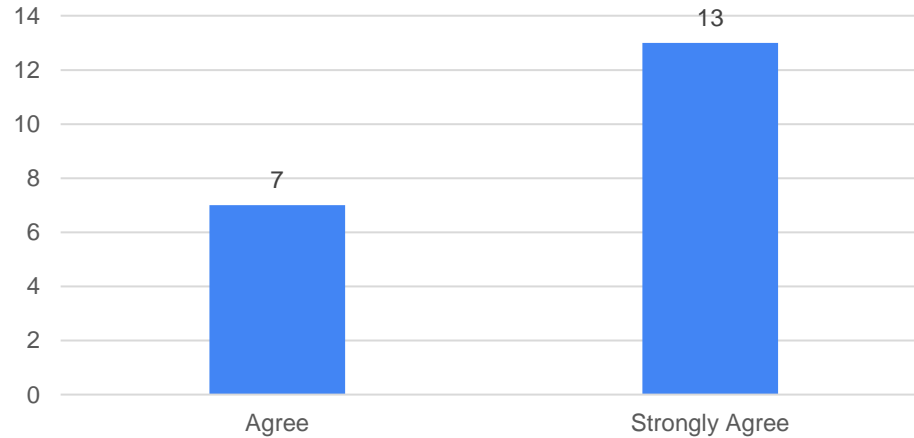


Teacher reflections : Post-Implementation



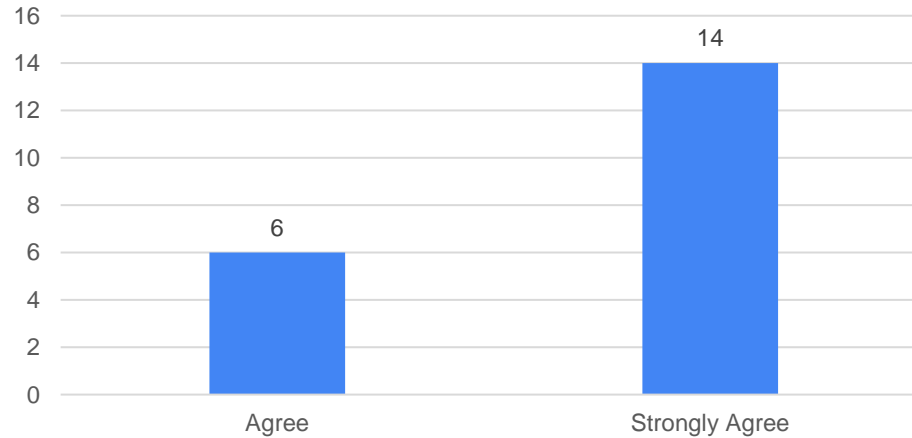
Teacher reflections : Post-Implementation

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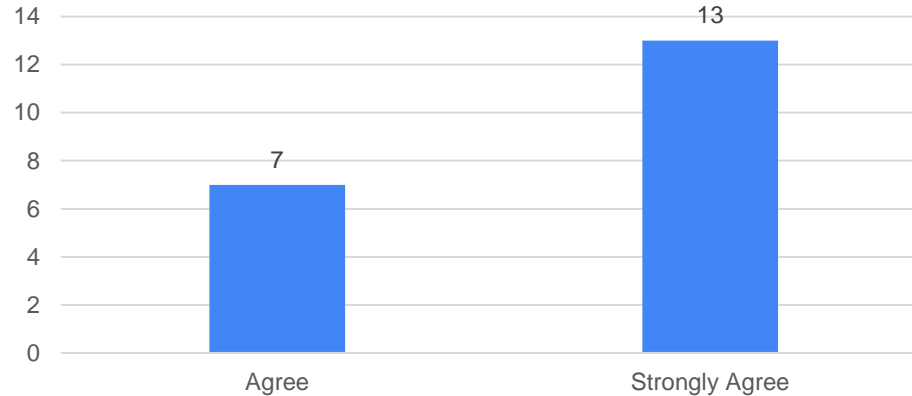
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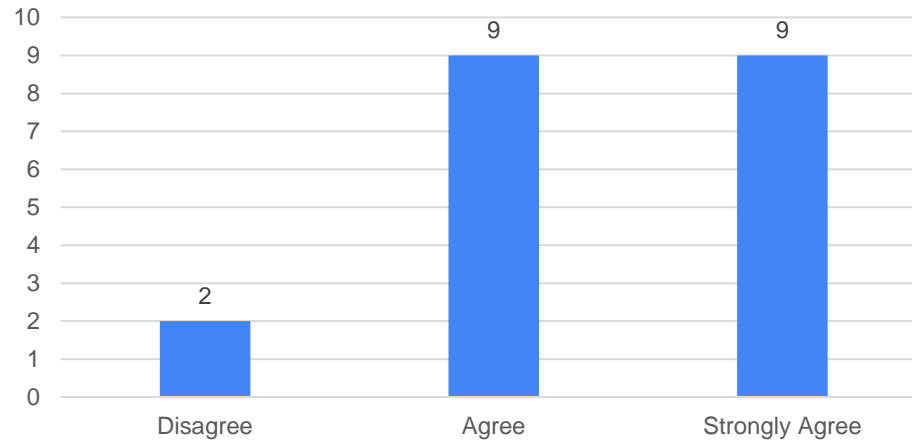
Teacher reflections : Post-Implementation

(9) The experiences of applying the STEAME method (project-based learning) were useful to me for possible application in my work.



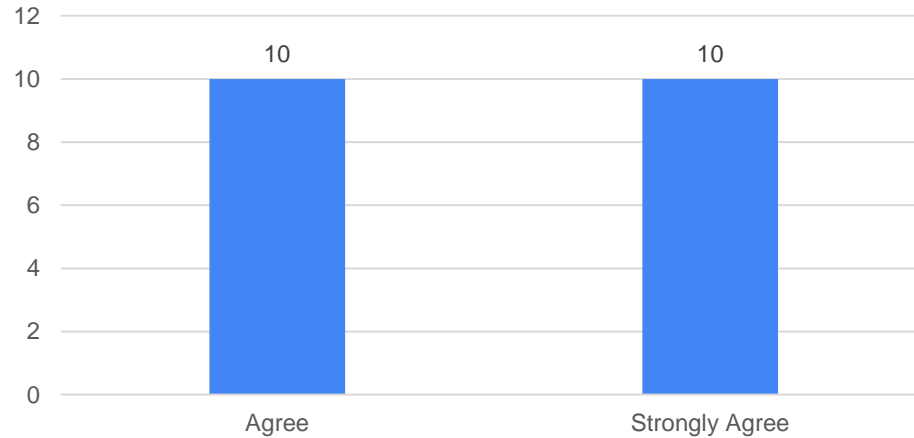
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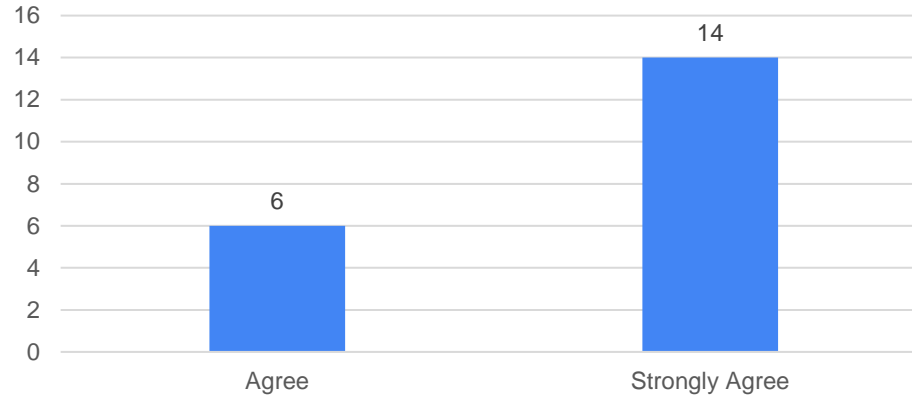
Teacher reflections : Post-Implementation

(11) I plan to partially implement the STEAME program in my daily teaching.



Teacher reflections : Post-Implementation

(12) I have developed, in collaboration with other Educators, a Learning and Creativity Plan during the training.



**DO NOT FORGET ETHICS IN
STEAME PBL EDUCATION**

ETHICS

ETHICAL ISSUES



EQUITY AND ACCESS

Ensuring equal opportunities for all students and addressing disparities in access to technology and resources

- **Tech Access:** Ensure all students have necessary technology.
- **Fair Resources:** Distribute resources equitably.
- **Support Programs:** Help students lacking tech access.
- **Inclusive Policies:** Promote equal opportunities.

Link: [Equity in School Education in Europe](#)



PRIVACY AND DATA SECURITY

Safeguarding student data and balancing technology use with privacy concerns

- **Protect Personal Data:** Ensure students' personal information is kept secure and private.
- **Follow GDPR:** Adhere to the General Data Protection Regulation for data protection.
- **Use Secure Platforms:** Choose technology tools that prioritize data security.
- **Educate Students:** Teach students about online privacy and safe technology use.
- **Monitor Usage:** Regularly check how technology is being used to ensure compliance with privacy standards.

Link: [Data Protection in the EU](#)





ETHICAL USE OF TECHNOLOGY

Responsible digital citizenship and ensuring technology is used ethically and effectively

- **Ethical Use:** Use technology responsibly and ethically.
- **Digital Citizenship:** Promote positive online behavior.
- **Privacy:** Protect personal data and privacy.
- **Awareness:** Educate about the impact of technology.

Link: [Ethical Guidelines on the Use of AI and Data in Education](#)



INCLUSIVITY AND DIVERSITY

Promoting an inclusive and diverse learning environment, addressing biases, and promoting cultural competence

- **Inclusive Education:** Ensure everyone has access to quality education.
- **Equity and Cohesion:** Promote fairness and social unity.
- **Cultural Competence:** Encourage understanding and respect for different cultures.
- **Monitor Progress:** Track and improve inclusivity efforts.

Link: [Inclusive Education - European Education Area](#)

ENVIRONMENTAL SUSTAINABILITY

Considering the environmental impact of educational practices and promoting sustainable practices in schools and universities

- **Sustainability in Education:** Integrate sustainability into all education areas.
- **Green Skills:** Teach students skills for a sustainable future.
- **Erasmus+ Focus:** Prioritize green projects in education programs.
- **Teacher Training:** Train teachers on sustainability and climate change.

Link: [Learning for the Green Transition](#)

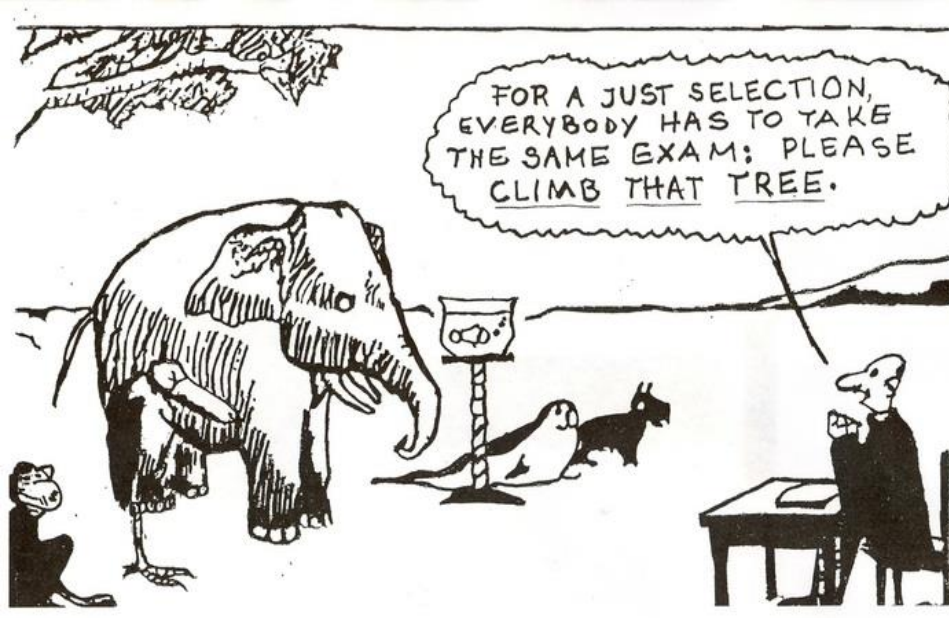


CURRICULUM CONTENT AND FAIR ASSESSMENT

Ensuring curriculum content is unbiased and inclusive, and fair and transparent assessment and grading practices

- **Unbiased Content:** Ensure curriculum is fair and inclusive.
- **Fair Assessment:** Use transparent and fair grading methods.
- **Whole-School Approach:** Involve the whole school community in assessments.
- **Teacher Collaboration:** Share tools and best practices among teachers.

Link: [Inclusive Assessment Recommendations](#)



STEAME PBL

Fair and effective assessment of group projects

- **Clear Criteria:** Define clear criteria for both individual and group contributions.
- **Mixed Evaluation:** Use a combination of instructor, self, and peer evaluations.
- **Regular Check-ins:** Monitor group progress regularly to address issues early.
- **Fair Grading:** Ensure fair grading by considering individual efforts within the group.
- **Support and Guidance:** Provide guidance on effective group work and conflict resolution.

Link: [A Guide to STEAM Project-based Learning](#)



SOCIAL AND EMOTIONAL LEARNING (SEL)

Prioritizing students' social and emotional well-being and integrating social and emotional learning into the curriculum.

- **Importance of SEL:** Social and emotional learning (SEL) is crucial for helping students manage their emotions, build healthy relationships, and navigate social challenges.
- **Holistic Approach:** ENSEL aims to integrate life skills into various aspects of students' lives, including home, school, and community environments.
- **Teacher Training:** The network focuses on equipping teachers with the necessary skills, knowledge, and confidence to foster students' social and emotional development.
- **Community Involvement:** ENSEL emphasizes the importance of involving families and the broader community in supporting students' social and emotional growth.

Link: [European Network for Social Emotional Learning \(ENSEL\)](#)



TEACHER-STUDENT RELATIONSHIPS

Maintaining healthy and respectful relationships and ensuring ethical interactions between teachers and students

- **Balance of Giving and Receiving:** Teachers need to balance giving support and receiving nourishment to maintain a healthy and sustainable teaching life¹.
- **Reciprocity Principles:** Understanding and practicing reciprocity helps in nurturing and enriching relationships within the school community.
- **Compassion and Trust:** Building compassion and trust among teachers and students is essential for a supportive and respectful environment.
- **Social Cohesion:** Strengthening social cohesion within the school community through bodily and creative practices enhances connections and ethical interactions.

Link: [Nurturing Strong Teacher-Student Relationships](#)



FUTURE EU SCHOOLS AND UNIVERSITIES

The European Education Area initiative structures collaboration between Member States and stakeholders to build more resilient and inclusive national education systems.

- **European Education Area (EEA):** The EU's initiative to create resilient and inclusive national education systems.
- **Digital Education:** Tools and resources to support learners' wellbeing and digital transformation in education.
- **Innovation Bulletin:** Focus on upskilling and reskilling in higher education for green and digital transitions.

Link: [European Education Area](#)



COMING EVENTS
for exchange and creativity

EUROPEAN STEAME-ACADEMY SYMPOSIUM 2025

12-16 March 2025, Thessaloniki, Greece

<https://www.euromath.org/index.php?id=928>

<https://steame-academy.eu/events/>

parallel to EUROMATH & EUROSCIENCE 2025 Conference for school students

EUROPEAN STEAME-ACADEMY CONFERENCE 2026

12-16 March 2026, Paphos, Cyprus

www.steame-academy.eu

www.steame-academy.eu

www.euromath.org

www.euro-science.info

COMING EVENTS
for exchange and creativity

FREE WORKSHOPS PROGRAMME

WORKSHOP2: 16-17 January 2025, Bucharest, Romania

<https://steame-academy.eu/events/>

FREE ONLINE WEBINARS

[**https://steame-academy.eu/steame-video/**](https://steame-academy.eu/steame-video/)

<https://steame-academy.eu/steame-video/>

STEAME TEACHER FACILITATORS ACADEMY

CONSORTIUM

1. PEDAGOGICAL UNIVERSITY OF KRAKOW, (PL) (Coordinator)
- 2 CYPRUS MATHEMATICAL SOCIETY (CY)
- 3 UNIVERSIDADE DO ALGARVE (PT)
- 4 PANEPISTIMIO AIGAIU (EL)
- 5 EUROPAIKOS SYNDESMOS PROSANATOLISMOU STADIODROMIAS (CY)
- 6 UNIVERSITATEA SPIRU HARET (RO)
- 7 ASOCIATIA "INSTITUTUL PENTRU DEZVOLTAREA EVALUARII IN EDUCATIE" (RO)
- 8 PLOVDIVSKI UNIVERSITET PAISIY HILENDARSKI (BG)
- 9 UNIVERSITAT DE BARCELONA (ES)
- 10 PAIDAGOGIKO INSTITOUTO KYPROU (CY)
- 11 PROF. IVAN APOSTOLOV PRIVATE ENGLISH LANGUAGE SCHOOL (BG)
- 12 INSTITUTO POLITECNICO DO PORTO (PT)
- 13 EUROGEO VZW (BE)
- 14 DOUKA EKPAIDEFTIRIA AE (EL)

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Q & A

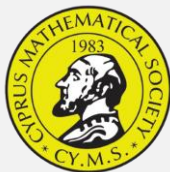
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